

REMARKS

Elected claims 1 and 8-22 remain in the present application for further prosecution.

Claims 1, 8, 15 and 16 have been amended to distinguish over the prior art of record. No new matter was added. Accordingly, Applicants respectfully submit that elected claims 1 and 8-22 are in condition for allowance.

Non-elected method claims 23-26 are withdrawn; however, they remain in the present application for the possibility of rejoinder. Non-elected method claim 23 has been amended to correspond to, and include all limitations of, elected claim 1. Accordingly, Applicants respectfully request that the non-elected method claims be rejoined in the present application should elected claim 1 be in condition for allowance.

Accordingly, Applicants respectfully submit that the present application, including claims 1 and 8-26, is in condition for allowance.

I. Claim Amendment

The range of content of aluminum in the ruthenium powder, sputtering target, and thin film required by the claims of the present application has been amended. Independent claims 1 and 15 require a range of 7 to 50 wtppm, and dependent claims 8 and 16 require a range of 7 to 20 wtppm. Thus, the lower end of the range has been amended from 5 wtppm to 7 wtppm.

Applicants respectfully submit that no new matter was added. The present application, as filed, on page 6, line 15, to page 8, line 2, discloses four Examples of the present invention. Example 1 has 10 wtppm of Al content; Example 2 has 15 wtppm of Al content; Example 3 has 7 wtppm of Al content; and Example 4 has 43 wtppm of Al content. For instance, see: page 6, lines 22-23; page 7, lines 2-3, 16-17 and 30-31; and page 10, Table 1, Al content for Examples 1-4.

The lowest amount of Al content listed in Examples 1-4 is that of Example 3, 7 wtppm. Thus, the lower end of the claimed range corresponds to the lowest Al content disclosed by the Examples. Since 7 wtppm is clearly disclosed, Applicants respectfully submit that no new matter is added. Rather, the scope of the claims (with respect to the lower limit of Al content) is merely being limited to cover the Examples disclosed in the present application, as filed.

The Examiner's acknowledgement that no new matter is added is respectfully requested.

II. Claim Rejection - 35 USC §102(b)

In the non-final Office Action dated January 5, 2009, claims 1 and 8-22 are rejected under 35 USC §102(b) as being anticipated by U.S. Patent No. 6,036,741 issued to Shindo et al.

In the Office Action, the disclosure by Table 1, "Comparative Example 1" on column 8, lines 30-55, of the cited Shindo et al. patent is relied upon for purposes of anticipating the range of Al content required by the claims of the present application. More specifically, the following statement is contained in the Office Action:

"... Shindo et al. discloses a purified Ru powder with ... an Al content of 5 ppm (Table 1, Comp. 1). These values originate from a specific example in the prior art and, therefore, anticipate the claimed range (MPEP § 2131.03)."

As discussed above, the claims of the present application have been amended to require an Al content of 7 to 50 wtppm or 7 to 20 wtppm. No new matter was added (see above).

A claim of a patent application can be properly anticipated under 35 USC §102 only if each and every element is found described in a single prior art reference. The identical invention must be shown in as complete detail as contained in the claim, and the elements identified by the reference must be arranged as required by the claim. If a prior art reference relied on in a rejection made under 35 USC §102 does not contain every element recited in the claim in as

complete detail as is contained in the claim and arranged as recited in the claim, the anticipation rejection must be removed.

Based on the amendment made to the claims of the present application, Applicants respectfully submit that claims 1 and 8-22 are not anticipated by the cited Shindo et al. patent. The Comparative Examples disclosed by the cited Shindo et al. patent clearly fail to disclose ruthenium powder having the claimed Al content. Accordingly, Applicants respectfully request reconsideration and removal of the anticipation rejection of the claims of the present application.

Further, Applicants respectfully submit that the claims of the present application are patentable over the cited Shindo et al. patent. This is because the Shindo et al. patent clearly teaches-away from the present invention. For example, column 3, lines 15-16, of the Shindo et al. patent clearly teaches to one of ordinary skill in the art that the ruthenium material must contain “less than 1 ppm each of Al and Si”. Also, see column 6, lines 44-46, of the Shindo et al. patent which states:

“Typical elements Al and Si, which can increase electric resistance, are limited to less than 1 ppm each, preferably less than 0.5 ppm each.”

Each of the Examples according to the Shindo et al. patent has less than 0.1 ppm of Al. For example, see column 8, Table 1, of the Shindo et al. patent.

The above referenced teachings of the cited Shindo et al. patent teach-away from the present invention. The presence of the Al in the present invention at the stated content level is required to yield the effect of refining the target structure to cause the crystal orientation to become random thereby reducing the generation of particles during deposition and making the film thickness distribution more uniform. In contrast, the cited Shindo et al. patent directs one of ordinary skill in the art to reduce the content of Al as much as possible (i.e., preferably “less than 0.5 ppm”) since Al is taught as being an undesirable element.

Accordingly, with respect to Al content, the teachings of the cited Shindo et al. patent and that of the present application are complete opposites. This is best stated in the present application, as filed, on page 5, lines 7-14, which reads:

“... This addition of Al makes the target structure fine and gives random crystal orientation, and thereby it was possible to yield the effect of reducing the generation of particles during deposition and making the film thickness distribution uniform.

Conventionally, Al was considered to be an undesirable element and was reduced as much as possible to be less than 1ppm. Nevertheless, not only does Al have a small influence on the semiconductor characteristics, it yields superior effects as describes above. Al plays a role as a preferable element to be added rather than as an impurity inflicting adverse effects.”

Accordingly, Applicants respectfully submit that claims 1 and 8-22 are not anticipated by, and are patentable over, the cited Shindo et al. patent. Applicants respectfully request reconsideration and removal of the rejection and rejoinder of the withdrawn, non-elected method claims which include the same limitations.

III. Conclusion

In view of the above amendments and remarks, Applicants respectfully submit that the claim rejections have been overcome and that the present application is in condition for allowance. Thus, a favorable action on the merits is therefore requested.

Please charge any deficiency or credit any overpayment for entering this Amendment to our deposit account no. 08-3040.

Respectfully submitted,
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